PATENT CLAIMS

1. Method of construction of internal combustion engine without a connecting rod characterized in that that the number of working crank arms (n_1) and the stroke of the pistons (S) in the cylinders are programmed in advance, whereat the number of the crank arms (n_1) is an even number, equal to or greater than six, the center (O_1) of the engine is marked and depending on the even number chosen of the crank arms (n_1) there are drawn such a number of radial beams ($f_1 \ldots f_{n1}$) through the center (O_1) which form equal central angles (α) among them whereat the radial beams are axis lines of the working cylinders; the basic circumference K_1 with a center (O_1) and a radius R_1 is drawn depending on the chosen even number of the crank arms (n_1) and the programmed stroke (S) of the pistons, which are connected by the relation

$$R_1 = \frac{S}{1 - \cos \alpha},$$

where the beams cross the basic circumference (K_1) in the points ($A_1 \ldots A_{n1}$) and cut it into (n_1) number of arcs ($\overset{\frown}{L_1}$) equally long; there are drawn additional circumferences (K_2) and their centers (O_2) lie on the radial beams (f_1, f_3, f_5) odd in number whereat the number of the circumferences K_2 is equal to the half of the number chosen of the crank arms (n_1) and the radii (R_2) of the circumferences (K_2) are always equal to half of the basic circumference (K_1) radius (R_1) and the circumferences (K_2) pass at the same time through the basic circumference (K_1) center (O_1) as well as through the basic circumference (K_1) crossing points (A_1, A_3, A_5) with the odd number of radial beams (f_1, f_3, f_5) and because the number of circumferences (K_2) is half of the number of the crank arms

(n_1), thus the common points of the circumferences (K_1) and (K_2) are half $(n_1/2)$ of that number (n_1) too, and those points (A_1, A_3, A_5) connected consecutively form the basic chords $(A_1A_3,\ A_3A_5,\ A_5A_1)$ of the basic circumference (K_1), whereat the distance between the common cross points (B_1, B_2, B_3) of the mutually crossing circumferences (K_2) which are at the same time points of the crossing in the middle of the basic chords (A_1A_3, A_3A_5, A_5A_1) with the even number of radial beams (f_2, f_4, f_6) on one part and on the other - the crossing points of the same even number of radial beams (f_2, f_4, f_6) with the basic circumference (K_1) at the points (A_2, A_4, A_6) define the value of the stroke (S) of the pistons and the chain-like connected basic chords (A_1A_3, A_3A_5, A_5A_1) form a close geometrical figure drawn in the basic circumference (K_1), whereat the tops of that figure (A_1, A_3, A_5) divide the basic circumference (K_1) in arcs with equal length $(\overset{\frown}{A_1A_2A_3}, \overset{\frown}{A_3A_4A_5}$ and $\overset{\frown}{A_5A_6A_1})$ and each of those arcs has a length of two arcs (L_1) of the same circumference (K_1) or to each half length of the basic chords (A_1A_3, A_3A_5, A_5A_1) belongs one arc $(\overset{\frown}{L_1})$ of the division of the circumference (K_1) by the radial beams $(f_1 \ldots f_6)$, but the halves of the basic chords (A_1A_3, A_3A_5, A_5A_1) taken separately are chords of the circumferences (K_2) with their adjacent arcs $(\overset{\frown}{L_2})$; there is equation between the lengths of the arcs $(\overset{\frown}{L_1})$ and $(\overset{\frown}{L_2})$ of the circumferences (K_1) and (K_2) permiting reciprocating roll over without slipping over from one end position to another end position of the arcs (L_2) of the circumferences (K_2) on the arcs (L_1) of the circumference (K_1) whereat the ends of the arcs $(\overset{\frown}{L_2})$ of the circumferences (K_2) slip rectilinear, reciprocating on each of the axis lines $(f_1 \ldots f_6)$, on which those ends lie without leaving them or deviating from them, moving from the crossing points of the radial beams $(f_1 \ldots f_6)$ with the circumference (K_1) to the

common crossing points(B_1,B_2,B_3) between the circumferences (K_2) which on its part represents the stroke of the pistons (S) and the consecutive chain-like connection of the ends of the arcs (L_2)of the circumferences (K_2) form a close geometrical figure with arc-like units (6), whereat the mutually connected ends of the units (6)are formed by means of axes as cylindrical hinges (7)of that hinged multi-unit, whereat the arcs(L_2)of the circumferences (K_2) (13) form the outer cylindrical surfaces of the arc-like units (6) and the basic circumference (K_1) (12) forms the inner cylindrical surface of the engine case (1) on which the arc-like units (6)of the hinged multi-unit roll over reciprocating whereat the piston rods (4)are connected flexibly in the axes of the cylindrical hinges (7) of the deforming hinged multi-unit and with their other ends the piston rods (4)are fixed with the pistons (3) whereat there are drawn circumferences (K_3)(8´) from the centers (O_2) (9)of the circumferences (K_2)(13) with radii (R_3) smaller than the radii(R_2) of the circumferences (K_2)(13) and those circumferences (K_3)(8´) define the inner cylindrical surfaces of the arc-like units (6)on which surfaces the engine rollers (8)roll over, mounted by means of their axes (9) on the gear wheels (10)of the engine shaft (11).

2.An internal combustion engine without a connecting rod according to the method of claim 1, which includes an engine case with lying in one plane with it radially situated working cylinders and pistons in them which are fixed on it, characterized in that the number of the crank arms (n_1) of the engine are equal or greater than six and it is even in number whereat the pistons (3) are fixed with the piston rods (4), and the piston rods (4) at their other end are connected flexibly by means of cylindrical hinges (7) in hinges with

the arc-like units (6), as the even number of the arc-like units (6)define the number of working cylinders (2) with the pistons (3) in them and those arc-like units (6)form a closed hinged multi-unit, which touches flexibly with its outer cylindrical surfaces on the arc-like units (6) on the inner cylindrical surface of the engine case (1) and the engine shaft (11) is situated in the axis of the engine case (1) and it is formed by the shaft itself with two gear wheels (10) with rounded and pierced teeth, whereat the engine shaft (11) is put as a bearing in the lids of the engine case (1) and between the two gear wheels (10) in their pierced teeth are mounted axes (9)with the engine rollers (8) put on them in the form of a bearing; the axes (9)are parallel to and stand at equal distance of the axis line of the engine shaft (11) and the outer diameter of the rollers (8) is equal to the inner diameter of the arc-like units (6) and the number of the rollers(8), their axes (9)and the number of the teeth of each gear wheel (10) are the half of the number of the crank arms (n_1)of the engine.

3. An internal combustion engine without a connecting rod according to the method of claim 1, characterized in that a tooth power synchronizer is used, formed by the inner cylindrical surface of the engine case (1) with cut on it inner teeth (14) with a dividing line the basic circumference K_1 (12) and geared in them outer teeth (15)of the arc-like units (6) with dividing lines circumferences K_2 (13) whereat the axes of the cylindrical hinges (7) between the arc-like units (6) and the piston rods (4)lie on the divisor circumferences (13)of the arc-like units (6)of the hinged multi-units and the diameters of the dividing circumferences (13) of those units (6) are equal to the half of the diameter of the divisor circumference (12) the engine case (1),

regardless of the even number of the crank arms (n_1) of the engine.